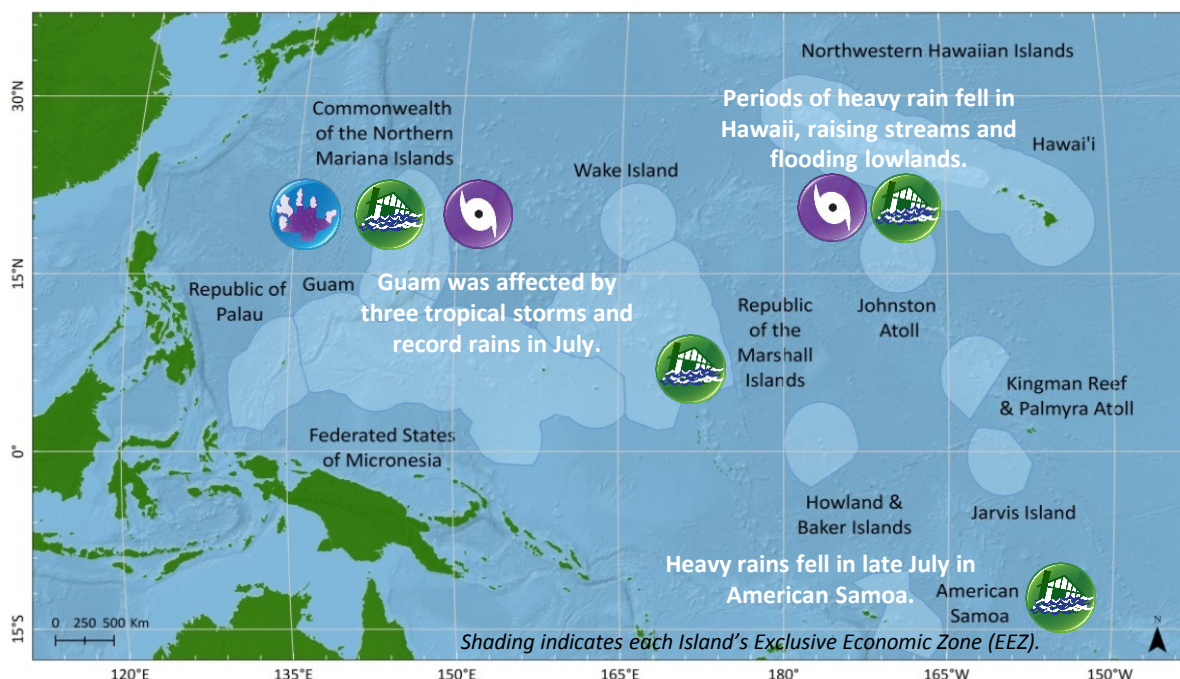


Climate Impacts and Outlook

Hawaii and U.S. Pacific Islands Region

3rd Quarter 2014

Significant Events and Impacts for 2nd Quarter 2014

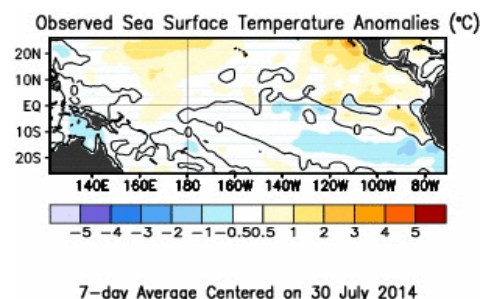


The region is still under an El Niño Watch.

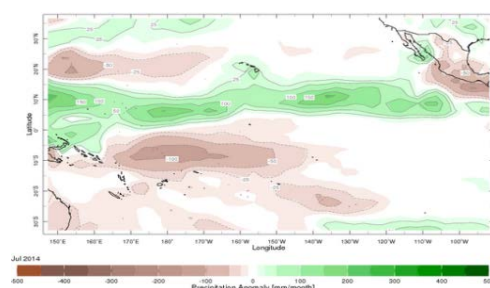
Above normal rainfall fell over much of Guam, Palau, the Federated States of Micronesia, and the Marshall Islands.

Sea-levels continued to fall across Guam, the Federated States of Micronesia, and the Republic of the Marshall Islands – supportive of the ongoing transition to El Niño state.

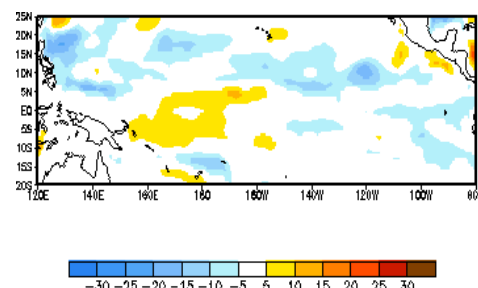
Regional Climate Overview for 2nd Quarter 2014



Sea-Surface Temperature Anomaly Map, valid July 30, 2014. Source: <http://www.cpc.ncep.noaa.gov>



July 2014 precipitation anomaly. Source: <http://iridl.ldeo.columbia.edu/>



Sea-Surface Height Anomaly, valid Aug 1, 2014. Source: <http://cpc.ncep.noaa.gov/>

The region remains under an El Niño Watch and weather conditions were more in-line with El Niño during the quarter (e.g., increasing sea-surface temperatures, falling sea level, and wet conditions across Micronesia). However, as of August 4th, the Niño 3.4 region anomaly was -0.1°C, which corresponds to ENSO neutral conditions.

Sea-surface temperatures were generally near normal, with the warmest anomalies exceeding 1°C near CNMI. The monthly mean sea level in the 2nd quarter continued to show falling levels in most of the USAPI stations; however, Guam, Pago Pago, and Honolulu remain slightly above normal. Yap experienced a 2" fall in sea level this quarter.

In Hawaii, rainfall was substantially above normal (327% of normal at Honolulu), though dryness lingered on the leeward sides of the Big Island and Maui. In Guam, rainfall was well above normal as quarterly values exceeded 158% of normal, including an all-time record of 29.39" of rain in July. In the RMI, rainfall was above normal, while in the FSM, quarterly rainfall, in terms of percent of normal, was generally above normal across most sites: Chuuk (102%), Kosrae (120%), and Yap (82%). Further west, Pohnpei was near-normal (101%), while in Palau rainfall was above-normal. In American Samoa, rainfall was above-normal for the quarter.

Drought conditions continue to improve over much of the Hawaiian Archipelago. As of the end of July, only 28% of the state of Hawaii was abnormally dry or in drought, compared to 86% this time last year. Hilo, Hawaii reported low temperature records during 5 days of June 2014, while parts of Chuuk state experienced several days above 90°F during the first week of June, 2014.

Tropical Cyclone activity for May-July in the western North Pacific basin was above normal with 5 named storms, two of which were Super Typhoons with peak wind speeds in excess of 135 knots (155 mph). In the Southern Hemisphere, no tropical cyclones were reported in the 2nd quarter, which is normal for the season. The Central Pacific was also above normal with 3 named storms – more details on impacts from T.S. Iselle will be covered in the next quarterly update.

Sectoral Impacts for 2nd Quarter 2014

Water Resources – Wet weather dominated much of RMI, FSM, and Guam during the last quarter, and all islands including FSM, RMI, and American Samoa were drought-free at the end of the quarter. During the final week of July, Super Typhoon Halong passed between Guam and Rota in its early stages as a tropical storm. Meanwhile, the water reservoirs in Majuro are at full capacity.

Public Health and Safety – An extreme 24-hour rainfall event was reported in American Samoa on July 30, causing a landslide and one fatality. A lightning strike killed a fisherman in Pohnpei in June.

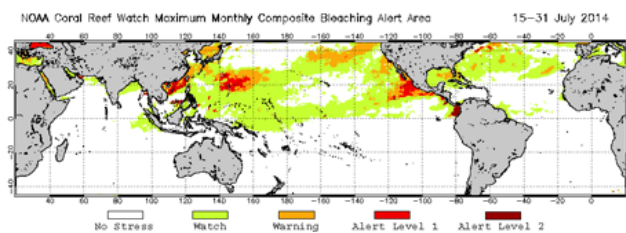
Facilities and Infrastructure – Moisture from the remnants of Tropical Storm Wali and an upper level disturbance produced heavy rainfall across the main Hawaiian Islands July 19-20. Widespread totals of 3-6" were observed across the islands of Oahu, Maui, and the Big Island. The highest observations were 10-14" over windward Oahu and homes were flooded in several communities. Parts of Kamehameha Highway were closed for several hours due to flooding and debris. The State of Hawaii issued a brown water advisory due to significant runoff in coastal waters.

Natural Resources – The SST anomaly in the western North Pacific Ocean increased in the most recent months and led to thermal stress causing some bleaching. Bleaching has been observed in parts of the CNMI and Guam. The passing of Super Typhoon Neoguri in early July reduced the SST anomaly and thermal stress significantly to the south and west of CNMI/Guam; SST anomalies fell further during the last two weeks of July.

Flooding rains in Guam from tropical storm Halong. Image courtesy of Guam Pacific Daily News.

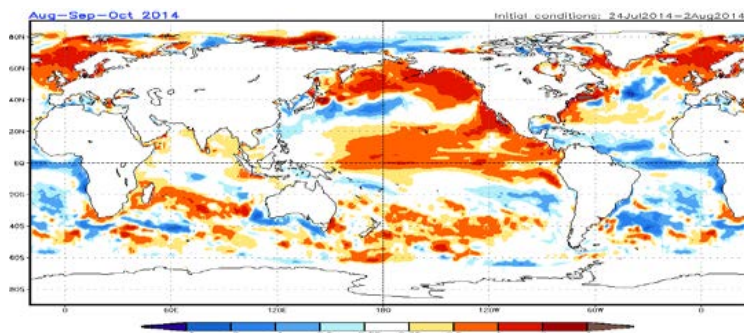


Flooding rains in Am. Samoa eroded parts of Utulei beach. Image courtesy of Am. Samoa Aquatics Agency



Satellite Coral Bleaching Alert Areas, July 2014

Regional Outlook for 3rd Quarter 2014 (Aug-Oct)



Forecast Seasonal SST Anomalies, Valid Aug-Oct. Source: <http://www.cpc.ncep.noaa.gov>

ENSO-Neutral conditions are expected to continue through October 2014. **Probabilities remain high that there will be an El Niño during the Northern Hemisphere winter 2014-15.**

The SST anomaly outlook for the 3rd quarter indicates near-normal values in Palau and FSM, but above-normal temperatures along and east of the Dateline. **Coral bleaching thermal stresses will linger for a few more weeks** across northern CNMI, the RMI, and the Gilbert Islands. The Hawaiian Islands may experience mild bleaching thermal stress from Sep-Oct.

The forecast values for sea level in the 3rd quarter indicate that most of the stations in the north and south Pacific regions are likely to be 2-3 inches higher than normal. Honolulu and Hilo will remain closer to normal.

Rainfall is anticipated to be average-to-above normal for CNMI, Palau, Chuuk, Pohnpei, Kosrae, and Majuro. Yap is expected to receive near-normal rainfall. Rainfall for American Samoa is projected to be near to slightly below normal, and Hawaii is projected to be near to above normal.

Tropical cyclone activity is expected to be above normal across the western North Pacific and Central Pacific regions, due to current high activity, a shift in the climate system toward El Niño, and computer model guidance. **An active typhoon season appears to be in store for Micronesia.** In the southwest Pacific, chances for TC formation are historically quite low, however, 83% of Aug-Oct TCs have occurred during Octobers when El Niño conditions were building.

Regional Partners

Pacific ENSO Applications Climate Center:
<http://www.prh.noaa.gov/peac/>

NOAA NWS Weather Forecast Office Honolulu:
<http://www.prh.noaa.gov/pr/hnl/>

NOAA NWS Weather Forecast Office Guam:
<http://www.prh.noaa.gov/pr/guam/>

NOAA NESDIS National Climatic Data Center:
<http://www.ncdc.noaa.gov/sotc/>

NOAA NESDIS National Oceanic Data Center:
<http://www.nodc.noaa.gov/>

NOAA NMFS Pacific Island Fisheries Science Center:
<http://www.pifsc.noaa.gov/>

NOAA OceanWatch - Central Pacific:
<http://oceanwatch.pifsc.noaa.gov/>

NOAA Coral Reef Watch:
<http://coralreefwatch.noaa.gov/>

USGS Pacific Islands Water Science Center:
<http://hi.water.usgs.gov/>

USGS Science Center – Pacific Coastal and Marine Science Center: <http://walrus.wr.usgs.gov/>

University of Hawaii - Joint Institute of Marine and Atmospheric Research:
<http://www.soest.hawaii.edu/jimar/>

University of Guam - Water and Environmental Research Institute: <http://www.weriguam.org/>